

New Host Records and Morphological Notes on Four Tortricines (Tortricidae)

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Hypericum perforatum (Guttiferae), St. John's-wort or Klamath weed, a plant of European origin, has been introduced into many regions of the world, including rangelands of the United States, Canada, South Africa, and Australia (Harris and Peschkin, 1974; Giese, 1980). St. John's-wort is considered a rangeland weed because it produces the phototoxic compound hypericin, a blister-inducing agent for livestock in the presence of sunlight (Blum, 1941). Because there are few published records of Lepidoptera feeding on *Hypericum* in North America (Kingsolver et al., 1984), we now report on four native North American tortricids reared from two species of *Hypericum*.

Larvae of *Platynota flavedana* Clemens, *Choristoneura parallela* (Robinson), *Sparganothis sulfureana* (Clemens), and *Xenotemna pal-lorana* (Robinson) were found in leaf ties on *H. perforatum* at several Illinois localities; the latter two species were also found at one site in Michigan. In addition, the last three species were collected in Illinois from *H. sphaerocarpum*, a native North American species that does not contain hypericin. For each tortricid species, as is applicable, *H. perforatum* and *H. sphaerocarpum* represent new host records (MacKay, 1962; Chapman and Lienk, 1971), although *S. sulfureana* has been reared from an undetermined species of *Hypericum* (Godfrey et al., in press). All four species are polyphagous feeders (see Table 1) with the majority of previous host records on agricultural crops (Chapman and Lienk, 1971). Identification of field-collected larvae was based on individuals reared to adult. For each species of tortricid, the hosts and collection data are provided, accompanied by morphological notes on the immature stages to supplement the existing keys in Chapman and Lienk (1971), MacKay (1962), and Mosher (1916).

Platynota flavedana is a pest on strawberry (Wilde and Semel, 1966). Larvae of *P. flavedana* were collected on *H. perforatum* from the end of June through August 1985 along roadsides of several Illinois localities: near Monticello (Piatt Co.), Mount Vernon (Jefferson Co.), Carbondale (Jackson Co.), and Marion (Williamson Co.). *P. flavedana* was common on *Hypericum* in 1985 but was not found in 1986.

Sparganothis sulfureana is recorded from a wide variety of plants,

Table 1. Host records of 4 species of Tortricidae larvae collected and reared on *Hypericum perforatum*.

SPECIES	HOST RECORDS
<i>Choristoneura parallela</i>	Compositae, Ericaceae, Guttiferae*, Leguminosae, Myricaceae, Rosaceae, Rubiaceae, Rutaceae
<i>Platynota flavedana</i>	Aceraceae, Begoniaceae, Compositae, Ericaceae, Guttiferae*, Leguminosae, Malvaceae, Rosaceae
<i>Sparganothis sulfureana</i>	Ericaceae, Gramineae, Guttiferae*, Leguminosae, Pinaceae, Ranunculaceae, Rosaceae, Salicaceae, Umbelliferae, Verbenaceae
<i>Xenotemna pallorana</i>	Caryophyllaceae, Compositae, Guttiferae*, Leguminosae, Pinaceae, Rosaceae, Verbenaceae

* Represents a new host record

References: Beckwith, 1938; Chapman and Leinke, 1971; Deitz et al., 1976; Freeman, 1958; MacKay, 1962; Martin, 1958; Newcomer and Carlsen 1952; Wilde and Semel, 1966.

including many cultivated species. Considered a pest on cranberry, *S. sulfureana* is commonly known as false yellowhead or sulfur leafroller (Beckwith, 1938; Chapman and Lienk 1971). Larvae of *S. sulfureana* were commonly collected on *H. perforatum* from late June through August 1985 and 1986, at the same Illinois locations previously mentioned for *P. flavedana*. In addition, larvae of *S. sulfureana* were also collected from *H. perforatum* at the University of Michigan Biological Station (near Pellston, Michigan) in July 1985 and from *H. sphaerocarpaceum* near Monticello and near Forrest, Illinois (Livingston Co.) in July 1985 and 1986.

Xenotemna pallorana is a minor pest on young pines (Martin, 1958), young apple and other fruit trees (Newcomer and Carlson, 1952). While common, larvae were found only in July of 1985 and 1986 feeding on *H. perforatum* at the same Illinois localities previously mentioned and at the University of Michigan Biological Station. Larvae were also collected from *H. sphaerocarpaceum* near Monticello, Illinois in July 1986.

Choristoneura parallela also has a wide host range. Commonly known as the spotted fireworm, *C. parallela* is considered a pest on cranberries. The larvae were collected on both species of *Hypericum* near Monticello,

Illinois during July, 1986. They were found frequently on *H. sphaerocarpum* but only once on *H. perforatum* at this site. Larvae were also collected in July at a site east of Urbana, Illinois (Champaign Co.) on *H. sphaerocarpum*.

Although the caterpillars of *X. pallorana* and *C. parallela* are relatively easy to recognize compared to other *Hypericum*-feeding tortricids (see MacKay 1962 for descriptions), larvae of *P. flavedana* and *S. sulfureana* can easily be confused in the field. Chapman and Lienk (1971) illustrated the larva of *S. sulfureana* in color and distinguished it from *P. flavedana* by the presence of a thin black line along the lateral margins of the prothoracic shield. However, some *P. flavedana* may also have this black line. A more consistent field character involves the thoracic and abdominal pinacula of the dorsal setae. Most dorsal pinacula in *Platynota* spp. are elongated lengthwise whereas in *S. sulfureana* all the pinacula are round (Chapman and Lienk 1971; MacKay, 1962). In addition, Chapman and Lienk (1971) correctly noted that *S. sulfureana* may be separated from *P. flavedana* by the dark dorsum contrasting with the paler ventral region. In *P. flavedana* the dorsal area is concolorous with the rest of the body. MacKay (1962) distinguished *P. flavedana* from other *Platynota* spp. by its clear brownish-yellow head, prothoracic shield, and prothoracic pinacula. However, this distinctive coloration is only found on the last two instars. Younger larva have a black prothoracic shield and head (Wilde and Semel, 1966) and thus, cannot be identified using the above characters.

Mosher (1916) separated the pupa of *P. flavedana* from *S. sulfureana* by the presence of flattened cremaster setae and the absence of a row of spines on the second abdominal segment in the female. Some more obvious morphological differences between these species (that may prove to be a useful tool in the systematics of tortricines in general) involves variation in the shape of the vertex and the presence of maxillary palpi. *Platynota flavedana* has maxillary palpi and a round vertex which lacks a ridge (Fig. 1). In contrast, the pupa of *S. sulfureana*

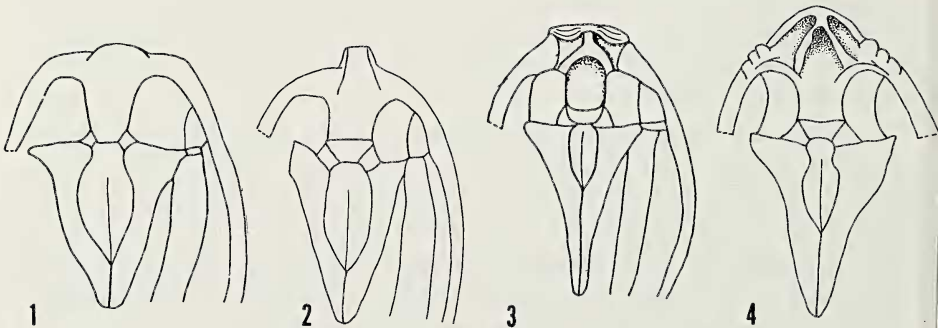


Fig. 1-4. Ventral view of four tortricine pupae (30x). 1. *P. flavedana* 2. *S. sulfureana*; 3. *C. parallela*; 4. *X. pallorana*.

lacks maxillary palpi and has a ridge which extends cephalad from the frons to the epicranial suture (Fig. 2). A similar ridge is found in *C. parallela* (and other *Choristoneura* spp.) but it runs between the antennal scapes (Fig. 3). *X. pallorana* was not included in Mosher's (1916) key but the characteristic vertex (Fig. 4) readily distinguishes this species from other *Hypericum*-feeding tortricids in Illinois.

It is of interest that four native generalist tortricid species have been found commonly feeding on an introduced plant notorious for containing a phototoxin. Although this occurrence seems to run counter to current ideas on insect-plant interactions, i.e., specialists are adapted to feed on plants with defensive chemicals whereas generalists are deterred by them (Janzen, 1979), the larval leaf-tying habits of all these species may shade them from the phototoxic effects of hypericin and thus preadapt them for feeding on phototoxic plants (Sandberg and Berenbaum in prep.).

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